

**Abstract**

1        A method of the grooming traffic signals through a composite switch is disclosed that enables  
2 a traffic signal that is being transmitted between any two constituent switches to be re-routed through  
3 the composite switch without a hit (*i.e.*, the dropping, replacing, inserting, or repeating of at least one  
4 bit in the traffic signal). This applies whether the constituent switches are adjacent in the composite  
5 switch or not. The composite switch in accordance with the illustrative embodiment comprises  
6 multiple routes between adjacent constituent switches and incorporates a mechanism that compensates  
7 for differential propagation delays along the routes. And still furthermore, the composite switch in  
8 accordance with the illustrative embodiment comprises alternative routes through different constituent  
9 switches and incorporates a mechanism that compensates for differential propagation delays through  
10 the constituent switches.